

Introduction

This project is an attempt to design a system to address an important subset of the needs of first generation college students enrolled at the University of Maryland at College Park. This paper will detail our user needs, research results, design methodology, and our proposed solution for addressing those needs.

User Needs

As a population, first generation college students have a number of specific needs. They are less likely to possess information about the college process, less likely to ask questions of professors and advisers, and more likely to feel intimidated by the university bureaucracy. In many cases, they do not bring their questions and concerns before their existing social networks. This can be because their existing social networks are unable to deal with the concern (for example, their family may not understand the pressures/concerns of college life), or because they perceive stigma associated with a specific questions or lack of knowledge. Additionally, our target user has ready access to a desktop or mobile technology. In short, our users have a wealth of questions, but a dearth of answers.

Supporting Research

Our research can be divided into three categories: the user interviews we conducted ourselves, information gleaned from publications and websites, and the data collected by Karen Holtzblatt. We used this research to build our understanding our users and their needs.

User Interviews

In order to obtain a better understanding of our users and their needs, we performed a series in-person interviews with first generation college students. Our users were obtained by contacted some of an on campus resource group that specializes in helping first generation college students. This group, the AAP (academic achievement program), then sent our contact information out to their mailing lists. From there, we explained the nature of our project and set up a time and place for our interviews. In comparison to reviewing the literature and going over Karen's data, user interviews were our primary method for obtaining first hand information on target users.

The Literature

In addition to user interviews, we also consulted journals and online publications. While our user interviews provided the basis for our understanding of the target population, we used the literature sources to verify that our findings were generalizable. If a data point was found in both a user interview and a publication, then it seemed reasonable to assume that the data was representative of the larger population.

Karen's Data

Karen's data was used as both validation and as inspiration for our initial brainstorming sessions. We were unsure, initially, whether her data would prove to be applicable to our population as her data was collected from students who were at-risk, under-served, and largely

enrolled at two year institutions. None of these qualities were applicable *necessarily* to our users; the defining characteristics for whom were being first generation and enrolled at a four year institution: the University of Maryland at College Park. Nevertheless, we found that having access to Karen's data and being able to walk the wall were extremely useful for obtaining an initial understanding of our users and providing the grist for early brainstorming sessions.

Our Claims and their Sources

A summary of user needs, as well as the support found in our research:

CLAIM	USER INTERVIEW	LITERATURE	KAREN'S DATA
First generation college students are less likely to possess relevant knowledge about the college experience.	"I was going off what the movies told me and [my conception of college life] wasn't accurate at all. All that drinking - you don't have to drink in college."	"Low-income, minority, and first-generation students are especially likely to lack specific types of "college knowledge." They often do not understand the steps necessary to prepare for higher education which include knowing about how to finance a college education, to complete basic admissions procedures, and to make connections between career goals and educational requirements" [2]	
First generation college students don't ask enough questions of professors and advisors.	"I actually picked up a minor [from the extra credits] because I didn't ask about how [the credits for my courses] overlapped."	"It was also found from the current study that FGCS[First generation college students] generally do not ask questions and/or seek help from faculty members and support staffs..." [1]	
The social networks, specifically family, of first generation college students are often unable to adequately address their college related questions and concerns.	"Like, I can't go to my father and be like 'Hey pops how did you handle everyone around you drinking?'"	"It is absolutely the case that they have parental support, but they don't have anybody in the family who really knows the ropes," [2]	"He only has one person in his social network, his caseworker, who can connect him to other services and other forms of help/support" [Karen's Data]
First gen students are intimidated by the bureaucracy, or can't find the answer to questions through official college sources.	"Coming into the school I think it was one of my papers. I was scared to go to my professor to ask for help." "The advisors couldn't answer my questions and they would keep referring me. When I found out that I could make that switch it was too late. I had to email four different people to get my answers and I didn't get what I wanted."	"A dean of a community college observes that a large percentage of first-generation students are intimidated by the educational system, and do not understand when it can be flexible and when it cannot" [2]	
Some first generation college students feel too embarrassed to ask questions when they feel the answer is supposed to be 'obvious' or known by everyone already.	"I think there's a stigma attached, because these are things that people are already supposed to know"		

First generation college students: a summary of their needs and supporting sources

Additionally, all users reported to possess a smart phone and to use it often. Additionally, they all reported access to either a desktop or a laptop.

Proposed Technology

Overview

The result of our research, and proposed solution, is UMD Answers: an online, anonymous, curated, question and answer forum. What follows are the system rules and description. Where appropriate, *comments in italics* are added to describe how a rule directly addresses a core user

need.

The primary methods for interaction will be web and mobile.

- We offer a webpage designed with mobile devices in mind.
 - All functionality is available through the web site.
 - More limited functionality is available through texting. Questions can be asked, and answers can be received, by text message.
 - *Our interviewed users all own smart phones and many own laptops. Mobile and text interfaces facilitate serving lots of content to lots of people.*

UMD students can ask Questions

- *First generation college students do not possess relevant information about the college experience.*
 - *First generation college students need to ask more questions.*
 - *Consequently, they need to ask more questions.*
 - *Our solution provides a method for doing so.*
- All questions are submitted anonymously
 - *Some first generation students report feelings of embarrassment or a stigma associated with asking questions that they feel are 'obvious' to others. Anonymity is an attempt to remove / reduce this and thus increase user participation.*
 - *First generation students can feel too intimidated to ask questions of college faculty and staff. Our hope is that by keeping things anonymous, users won't feel intimidated and will be more likely to ask questions or voice pressing concerns.*
- There are three modes of submission
 - Submit a question through a text interface
 - Submit a question through our web interface
 - Submit a question through our mobile interface
- Questions can be asked by anyone with a UMD ID and password.
 - *This provides a method for filtering out non UMD students.*
 - They will be used to log the user in to a customizable profile.
- Questions have categories and tags
 - Categories are exclusive.
 - do not have to be added at time of submission (part of curation process)
 - *This makes it easier to find answers to questions. We want our process to be easier than dealing with the university administrative staff.*
- Can be browsed and searched.
 - We provide a standard keyword search on the website
 - There is a view all questions option.
 - Questions can be browsed by Tag.
 - Tags are general and numerous.
 - Questions can have many tags.
 - Questions can be browsed by Category.
 - Categories are high level, and a question can be associated with only one category. Initially, the categories are:
 - Academics

- Financials
- College Life
- Clicking on a Tag or Category will display a list of all questions with that Tag or Category.
- *Being able to browse and search for questions will, hopefully, alert users to information, concerns, or problems that they didn't know they had.*
- *We imagine that many of the questions that first generation students have are not unique! By indexing questions and answers we show the user that they are not alone with their concern.*

All Questions will be Answered

- *The social networks of first generation students are often missing people with relevant knowledge about the college experience. Our questions and answers fill that gap.*
- Questions can be answered by anyone with an account.
- We guarantee that an answer will be posted in a set amount of time.
 - We provide official answer person to do this.
- Answers are **not** anonymous.
- Multiple answers are both allowed and encouraged.
 - Some answers may be better than others.
- The answer is posted to the website and to the UMD Answers Twitter feed.
- Users can sign up to be notified of an answer through:
 - Having the answer texted to their phone
 - Receiving a direct message on twitter
 - By being emailed

There will be people tasked with answering all questions in a timely manner

- Without this guarantee, we feel it will be difficult to attract and retain users. Without our users, our 'solution' fails to solve anything.
- They will, probably, be paid by the University.
- At launch, there won't be a community organized around the website.
 - This means that, initially, the only answers will be those that we provide.
 - Having people being paid to act in official answer positions solves this problem.
- These people will also be tasked with curating the questions and answers.
 - Not all submitted questions will be suitable for posting
 - They might contain inappropriate language, they may be spam, or they may be an unintelligible mass of text speak. This will need to be corrected before the question is posted to the website.
 - Likewise for answers.
- When answering questions, they will also be tagging and categorizing questions.
 - This is optional for the student submitting the question
 - It is mandatory that at least one category and one tag be added before an answer is submitted
 - Otherwise sorting and browsing by Category or Tag would become useless.

Summary of Design Process

Understand the Users

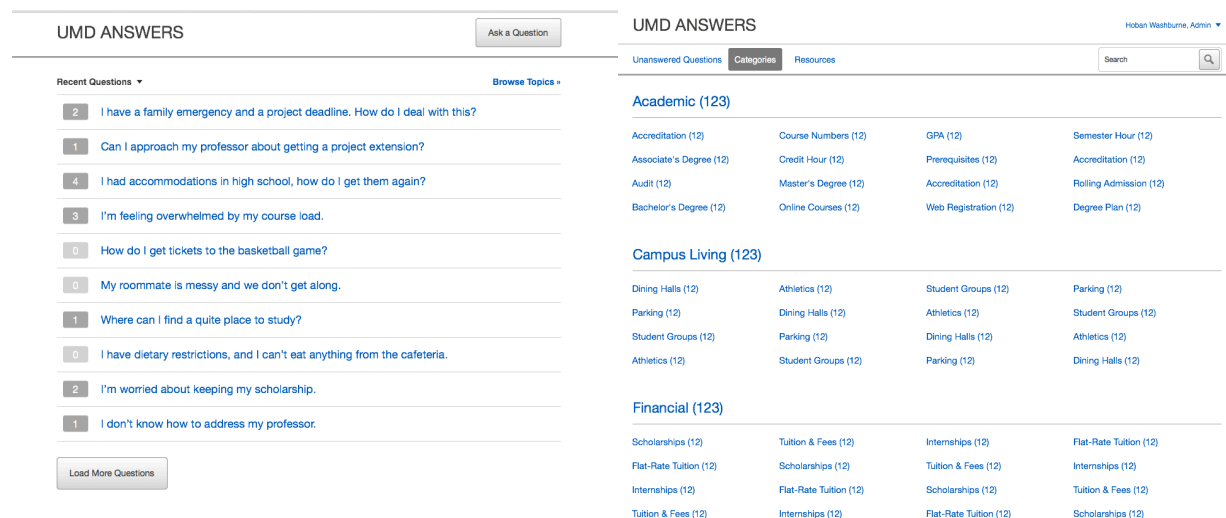
The first stage of our design process involved familiarizing ourselves with our user population through research. This process is detailed in the research section, but its importance shouldn't be understated. Without conducting the research, our knowledge of the population would be extremely limited. Any attempt at determining and designing for their needs would have been, at best, a series of well intentioned guesses.

Brainstorming































The second stage of our design process was to brainstorm possible solutions. This is where the concept of a Q&A forum was initially brought up. It seemed a natural solution to the problem of too many questions and not enough answers.

Parallel Design

With an idea decided on, we then engaged in parallel design. Parallel design involves each group member creating a system mockup from an identical set of guidelines (in our case, these were: web based Q&A forum, using 'Stackoverflow' or 'Quora' as inspiration). Because this method results in a large number of initial ideas in a short amount of time, we felt that, being strapped for time, it was an ideal choice. This resulted in 4 independent designs (1 per group member), which we then used to create the first draft of the technology description / system rules (see the previous section for details) and our initial wireframes:

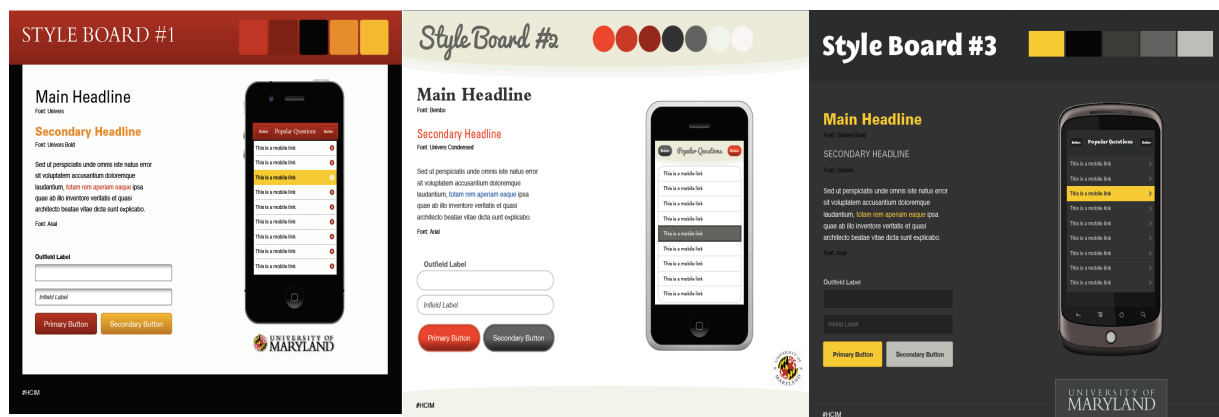


Course Numbers

I have a family emergency and a project deadline. How do I deal with this?	5 days ago	  
Can I approach my professor about getting a project extension?	2 days ago	  
I had accommodations in high school, how do I get them again?	yesterday	  
I'm feeling overwhelmed by my course load.	12 hours ago	  
Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt.	9 hours ago	  
	8 hours ago	  
Where can I find a quiet place to study?	7 hours ago	  
I have dietary restrictions, and I can't eat anything from the cafeteria.	45 minutes ago	  
I'm worried about keeping my scholarship.	30 minutes ago	  
I don't know how to address my professor.	9 minutes ago	  

Collaborative Design

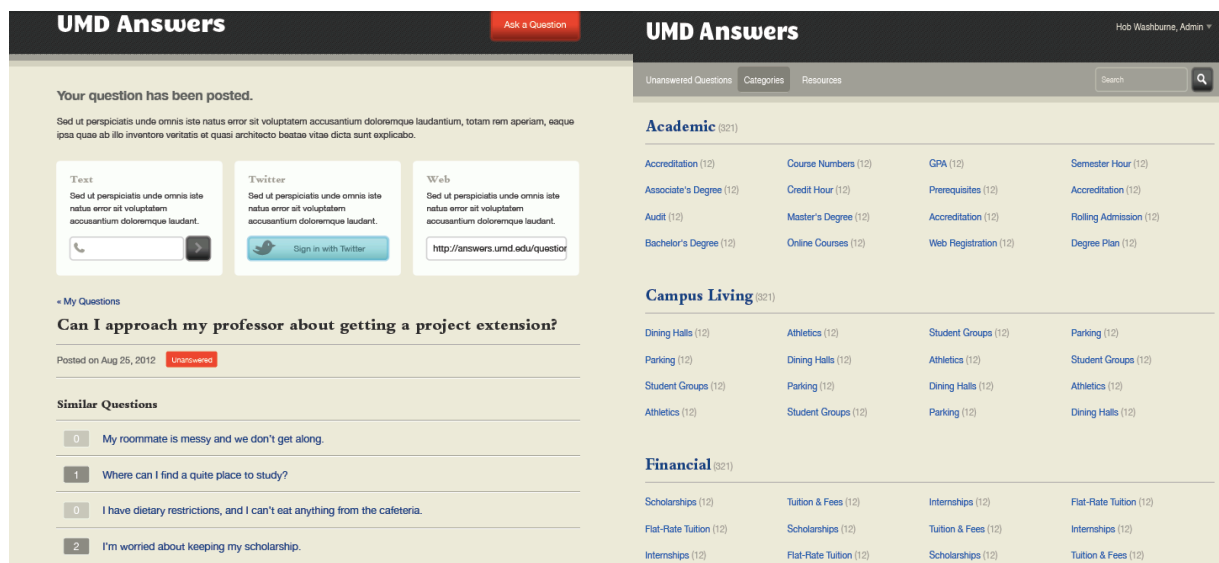
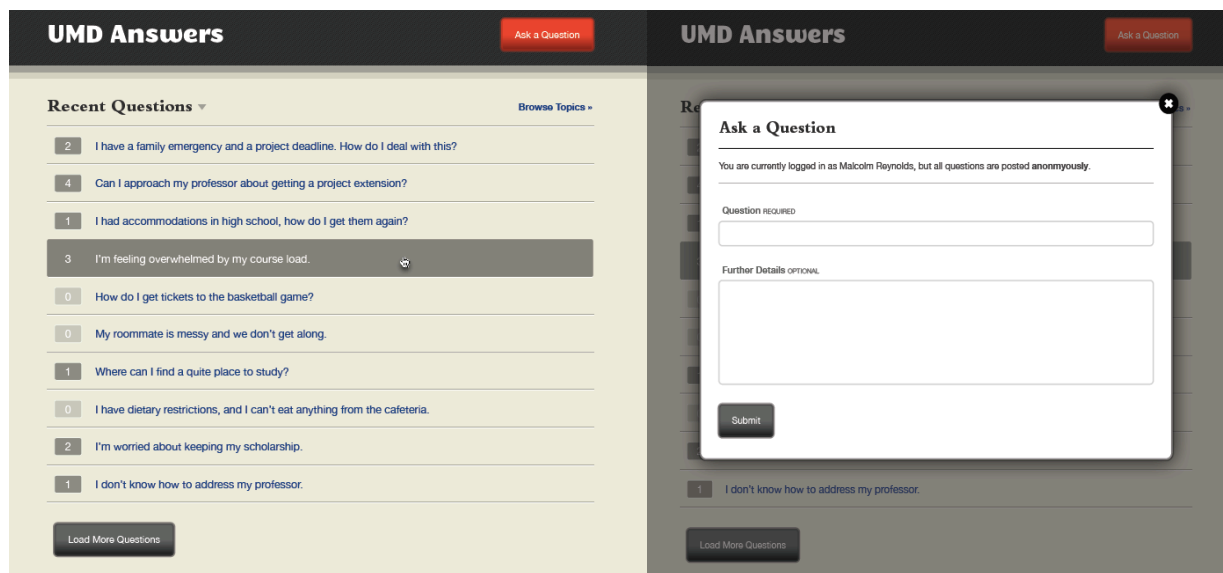
This stage was, primarily, visual design. As our technology was conceived of as an official university product, we attempted to abide by official university guidelines for color choice. The result was the following three style boards:



The final visual direction was determined with a vote. We chose the colors from the second style board, cream and red, as these were felt to be friendly (less official looking than first, less dry than the third) while still maintaining an aesthetically pleasing appearance. We then took the fonts (which we felt were modern and professional) and button style (rectangular, sharper edges, more masculine) from the third style board.

Combining System Rules with Visual Design

With a visual direction chosen, we set about combining our wireframes with our visual design guidelines. The result was the following:



Going clock wise from the top, we have **the home page** with a list of the most recent questions.

The number in grey represent the number of submitted answers for a particular question. Next, is the result of clicking on the '**Ask a Question**' button. The user is presented with a modal dialogue overlayed on top of the question page. The third page is the result of **submitting a question**. Here, the user can customize how they will be notified that their question can be answered. The options are by Text (enter your cell phone number), private twitter message (follow us on twitter), and through the web interface (the provided URL shows your question and any answers to it). Unless turned off, an email will also be sent to the user's @umd.edu email address. Finally, we have **the browse screen**. From here, the user can browse all of the submitted questions by category and tag. The numbers correspond to the quantity of questions within a category or tag.

Next steps and Future Iterations

With out initial system designs in hand, we performed a final set interviews to obtain user feedback on our proposed design. This proved to be valuable and suggested several options for going forward.

Suspect usefulness of Twitter Integration

None of the users who provides feedback reported use of Twitter. In fact, they both explicitly rejected the idea of receiving feedback through twitter. With that in mind, it may not be worth directing development resources towards integration. However, because of the small sample size, additional interviews (ideally a survey) would have to be performed before a final decision was made.

Facebook Integration

As an alternative to twitter, new answers can be posted to Facebook.

Anonymity of Answers

One of our feedback users mentioned something interesting: Questions aren't the only place where social stigma can be introduced. Some users might also feel embarrassed because of the potential for answering a question either incorrectly or with information that they feel could get them in trouble.

The proposed solution was to add anonymity to answers. This, however, comes with several, large trade offs. With anonymity it is harder to connect with other users and therefore harder to form a community. It can also cause people to become less pleasant and more likely to post spam (for examples of this, see the 4Chan and the Youtube comment threads).

Social Components

Many question and answer forums, such as 'Stack Overflow' and 'Quora', have addition social components in order to foster community and curate content. Examples include:

- Like-ing or voting on answers
- Allow answers to be accepted
- Implement a reputation system.

All of these options can result in increased community participation. Like-ing and voting allows for an active community to self police (unliked or down-voted items will show up less often, helping to mitigate spam answers). Allowing answers to be accepted gives an added level of granularity: just because a question has an answer posted doesn't mean it's a *good* answer. When the person who asked a question 'accepts' an answer, then other users know that questions has received a satisfactory response. Finally, a reputation system can provide an incentive for providing incentive for quality answers. Users can earn reputation 'points' when they answer a question and that answer is either either accepting or liked / up-voted. Users with more reputation might be given more power over the site (i.e ability to edit questions and answers for clarity, mark things as spam, etc). With greater status and responsibility our users will, hopefully, feel like they have more stake in the success of the community.

Works Cited

[1] Jenkins, Anthony, Yasuo Miyazaki, and Steven Janosik. "Predictors that Distinguish First-Generation College Students from Non-First Generation College Students." *Journal of Multicultural, Gender, and Minority Studies*. 3.1 (2009): n. page. Web. 12 Dec. 2011. <<http://www.scientificjournals.org/journals2009/articles/1429.pdf>>.

[2] Tym, Carmen, Robin McMillion, Sandra Barone , and Jeff Webster. "First-Generation College Students: A Literature Review." *TGSLC*. Texas Guaranteed, Nov 2004. Web. 12 Dec 2011. <http://www.tgslc.org/pdf/first_generation.pdf>.